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## Primary and Secondary Teachers' Knowledge, Interpretation, and Approaches to Students Errors about Ratio and Proportion Topics

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### ABSTRACT

This study investigated elementary and secondary teachers' understanding and pedagogical strategies applied to students making errors in finding a missing length in similar rectangles. It was revealed that secondary teachers had better understanding of ratio and proportion in similar rectangles than elementary teachers. While all secondary teachers solved the similar rectangles problems correctly, a large portion of elementary teacher struggled with the problem. In explaining their solution strategies, and even though similar strategies appeared both from elementary teachers and secondary teachers, a majority of secondary teachers pointed out the underlying idea of similarity, whereas less than half of the elementary teachers explained their reasoning for using ratios and proportion. This article is derived from the research project registered under number 20110343 (Ruiz, 2011), and developed in Escuela Superior de Cómputo del Instituto Politécnico Nacional (IPN) (School of Computer Sciences of the National Poly-technical Institute of Mexico)

### KEYWORDS

Primary Teachers, Secondary Teachers, Knowledge, Ratio, Proportion' Problems

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### References

- [1] Fisher, L. (1998). Strategies used by secondary mathematics teachers to solve proportion problems. *Journal for Research in Mathematics Education*, 19, 157-168. doi:10.2307/749409
- [2] Hart, K. (1984). *Ratio: Children's strategies and errors*. Windsor, England: NFER-Nelson.
- [3] Kilpatrick, J., Swafford, J., & Findell, B. (Eds.). (2001). *Adding it up: Helping children learn mathematics*. Washington D.C.: The National Academies Press.
- [4] Lamon, S. J. (2007). Rational numbers and proportional reasoning: Toward a theoretical framework. In F. Lester (Ed.), *Second handbook of research on mathematics teaching and learning* (pp. 629-668). Charlotte, NC: Information Age Publishing.
- [5] Lim, K. H. (2009). Burning the candle at just one end: Using nonproportional examples helps students determine when proportional strategies apply. *Mathematics Teaching in the Middle School*, 14, 492-500.
- [6] NCTM (2000). *Principles and standards for school mathematics*. Reston, VA: National Council of Teachers of Mathematics.
- [7] Ruiz, E. F. (2011) Indicadores teóricos para la Constricción de Conceptos del Cálculo Diferencial. Proyecto de investigación registrado en la Secretaría de Investigación y Posgrado (SIP), del IPN con núm. de registro CGPI 20110343. México. IPN,

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- [8] Ruiz, E. F. (1997). Uso de las calculadoras Math Explorer y TI-92 en la Resolución de Problemas: Una experiencia con profesores de los niveles básico y medio. Memorias del Seminario Nacional de Calculadoras y Computadoras en Educación Matemática, 25-35.
- [9] Ruiz, E. F. (2000) Study of solving strategies and proposal for the teaching of ratio and proportion. Proceedings of the Twenty-Second Annual Meeting North American Chapter of the International Group For The Psychology of Mathematics Education, 2, 395-396.
- [10] Ruiz, E. F. (2002). Estudio de estrategias de solución y una propuesta de Enseñanza de razón y proporción. Tesis Doctoral. Cinvestav-IPN. México. 17-344.
- [11] Ruiz, E. F., & Lupiañez, J. L. (2009). Detección de obstáculos psicopedagógicos en la enseñanza y el aprendizaje de los tópicos de razón y proporción en alumnos de sexto grado de educación primaria. Revista Electrónica de Investigación Psicoeducativa, 7, 397-427.
- [12] Schleppenbach, M., Flevares, L. M., Sims, L. M., & Perry, M. (2007). Teachers' responses to student mistakes in Chinese and U.S. mathematics classrooms. *The Elementary School Journal*, 108, 131-147. doi: 10.1086/525551